

ever, is to loosen the cohesion of the particles of rocks. A rock which can easily be scratched with the nail is almost always much decomposed, though some chloritic and talcose schists are soft enough to be thus affected. Compact rocks which can easily be scratched with the knife, and are apparently not decomposed, may be fine-grained limestones, dolomites, ironstones, mudstones, or some other simple rocks. Crystalline rocks, except limestone, cannot, as a rule, be scratched with the knife unless considerable force be used. They are chiefly composed of hard silicates, so that when an instance occurs where a fresh specimen can be easily scratched, it will usually be found to be a limestone (pp. 148, 139, 149). The ease with which a rock may be broken is the measure of its frangibility. Most rocks break most easily in one direction; attention to this point will sometimes throw light upon their internal structure.

**F r a c t u r e** is the surface produced when a rock is split or broken, and depends for its character upon the texture of the mass. Finely granular, compact rocks are apt to break with a splintery fracture where wedge-shaped plates adhere by their thicker ends to, and lie parallel with the general surface. When the rock breaks off into concave and convex rounded shell-like surfaces, the fracture is said to be conchoidal, as may be seen in obsidian and other vitreous rocks and in exceedingly compact limestones. The fracture may also be foliated, slaty, or shaly, according to the structure of the rock. Many opaque, compact rocks are translucent on the thin edges of fracture, and afford there, with the aid of a lens, a glimpse of their internal composition. A rock is said to be flinty, when it is hard, close-grained, and breaks with a smooth or conchoidal fracture like flint; friable, when it crumbles down like